

Remarks

Claims 1 to 10, of which only claim 1 is in independent form, are pending in the present application.

In paragraphs 4 and 5, the Office rejected claims 1 to 10 under 35 U.S.C. §103(a) as being unpatentable over French Patent FR 2728948 to Chevret et al (hereinafter "Chevret"), United States Patent Application US2003/0173723 to Behmenburg et al (hereinafter "Behmenburg"), United States Patent 5,180,145 to Watanabe et al (hereinafter "Watanabe") or United States Patent 3,046,003 to Schulz in view of German Patent DE 19642024 to Joseph or, alternatively United States Patent 5,752,692 to Crabtree et al (hereinafter "Crabtree").

The Office acknowledged the primary references do not teach the eccentric arrangement of the chambers for countering transverse forces to the strut.

However, the view was expressed that it would have been obvious at the time the invention was made to one having ordinary skill in the art to eccentrically arrange the chambers of each of the primary references as taught by Joseph or Crabtree.

Applicants strongly disagree with this conclusion, as the effect of the applicant's arrangement and Joseph's or Crabtree's arrangement differ significantly.

Joseph and Crabtree disclose an air spring rolling lobe being eccentrically orientated relative to the axis of a conventional hydraulic shock absorber.

Claim 1 requires:

"said inner air chamber and said outer air chamber being arranged eccentrically to each other." (emphasis added).

Crabtree discloses a telescopic strut for a vehicle suspension of the air spring type with a flexible sleeve forming a chamber portion and a rolling lobe portion. The air spring has a piston with a rolling lobe surface that is eccentrically offset in an amount that tends to equalize an axial length of the rolling lobe for durability.

In the arrangement of Crabtree, side load forces at the air spring are compensated due to the eccentric arrangement of the rolling lobe relative to the damper axis. However, with regard to damping forces, any transverse forces arising from those damping forces can not be compensated for since the damper axis is always the line of effect of these transverse forces. The line of effect in Joseph substantially corresponds to that of Crabtree.

It is, however, desirable to also compensate the transverse forces arising from damping and to divert them via a particular compensation point at the wheel suspension in order to avoid distortion at the wheel suspension. However, this compensation point is not intersected by the damper axes, that is, by the line of effect of transverse forces in Crabtree or Joseph. Thus distortion at the airspring damper unit or the wheel suspension can occur.

In contrast, the eccentric arrangement of the air chambers to each other of the applicants' invention will allow compensation for both transverse forces at the air spring and the

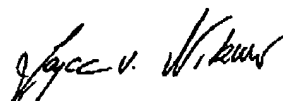
transverse forces that result from damping. In fact, small eccentricities will allow compensation for relative high transverse forces of both types. The outer air chamber causes a small force upwards and the inner air chamber causes a greater force downwards creating a resulting force downwards. In view of the eccentric arrangement of the air chambers to each other, the line of effect of the resulting force can, in contrast to Crabtree and Joseph, be directed to the desired compensation point so that not only transverse forces at the air spring, but also transverse forces that result from damping, can be directed through the compensation point (this effect is enhanced by a higher inner pressure in the air chambers). This is not possible in an arrangement according to Crabtree or Joseph. Exhibit A illustrates this difference between the prior art and the applicants' invention.

Applicants submit that the primary references and Crabtree or Joseph either alone or combined do not teach or suggest all the limitations of claim 1 as required for a prima facie case of obviousness (MPEP §2142). Applicants further submit that there is no motivation to combine the primary references with Crabtree or Joseph to arrive at the present invention. Applicants also submit that, if the references were combinable (which applicants deny), the advantages shown above would not flow naturally from the suggestions of the cited prior art. Thus, the above advantages of the present invention would be unexpected. The presence of an unexpected property constitutes evidence of non-obviousness (MPEP §716(a), §2145). Finally, applicants submit that there is no reasonable expectation of success.

Applicants have shown above that claim 1, the only independent claim in the present application, is non obvious over the cited prior art and thus should be allowable. Claims 2 to 10, which are directly or indirectly dependent on claim 1, should therefore also be allowable.

Reconsideration of the application is respectfully requested.

Respectfully submitted,


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